

Combined Margin	
Particulars	Specific emission (tCO2/GWh)
Operating Margin	978,32
Build Margin	652,13
Combined Margin	815,22

OPERATING MARGIN CALCULATION

Power Plants	Type of FUEL	PLF (%) by technology (average all India from CEA on performance basis of recent years)	Monitored Capacity MW (03 - 04)	Generation by Total Installed Capacity and PLF by given Technology	Generation in GWh	Actual capacity Utilization	IPCC Emission factor tCO2/GWh	Emission Rate
				(In.Cap*PLF*24hr*350days)/1000	April'03 - Mar'04			
NARIMAN GT	Natural Gas	0.38	10,000	31,920	0,000	0.0000	418,000	0,000
PYKARA DAM	Hydro	0.4	2,000	6,720	0,000	0.0000	0,000	0,000
SATHNUR DAM	Hydro	0.4	7,500	25,200	2,000	0.0794	0,000	0,000
METTUR TUNNEL	Hydro	0.4	200,000	672,000	70,000	0.1042	0,000	0,000
METTUR DAM	Hydro	0.4	40,000	134,400	15,000	0.1116	0,000	0,000
LOWER BHAVANI	Hydro	0.4	16,000	53,760	9,000	0.1674	0,000	0,000
PARSEN'S VALLEY	Hydro	0.4	30,000	100,800	18,000	0.1786	0,000	0,000
BASIN BRIDGE GT	Natural Gas	0.39	120,000	393,120	89,000	0.2264	418,000	37202,000
KUNDAH	Hydro	0.4	555,000	1864,800	429,000	0.2301	0,000	0,000
LOWER METTUR	Hydro	0.4	120,000	403,200	97,000	0.2406	0,000	0,000
KUTTALAM GT	Natural Gas	0.52	100,000	436,800	108,000	0.2473	418,000	45144,000
VAIGAI	Hydro	0.4	6,000	20,160	5,000	0.2480	0,000	0,000
SERVALAR	Hydro	0.4	20,000	67,200	19,000	0.2827	0,000	0,000
KADAMPARI	Hydro	0.4	400,000	1344,000	408,000	0.3036	0,000	0,000
SURULIYAR	Hydro	0.4	35,000	117,600	41,000	0.3486	0,000	0,000
ENNORE	Coal	0.82	450,000	3099,600	1258,000	0.4059	1085,000	1364930,000
KODAYAR	Hydro	0.4	100,000	336,000	141,000	0.4196	0,000	0,000
ALIYAR	Hydro	0.4	60,000	201,600	86,000	0.4266	0,000	0,000
MOYAR	Hydro	0.4	36,000	120,960	53,000	0.4382	0,000	0,000
PERIYAR	Hydro	0.4	140,000	470,400	213,000	0.4528	0,000	0,000
PAPANASAM	Hydro	0.4	28,000	94,080	47,000	0.4996	0,000	0,000
SARKARPATHY	Hydro	0.4	30,000	100,800	51,000	0.5060	0,000	0,000
P. NALLUR CCGT	Natural Gas	0.82	330,500	2276,484	1314,000	0.5772	418,000	549252,000
PYKARA DAM	Hydro	0.4	70,000	235,200	141,000	0.5995	0,000	0,000
SHOLAYAR	Hydro	0.4	95,000	319,200	199,000	0.6234	0,000	0,000
NEYVELI FST EXT	Lignite	0.82	420,000	2892,960	1993,000	0.6889	1085,000	2162405,000
B. BRIDGE D. G	Diesel	0.78	200,000	1310,400	992,000	0.7570	661,000	655712,000
NEYVELI TPS(Z)	Lignite	0.86	250,000	1806,000	1395,000	0.7724	1085,000	1513575,000
SAMAYANALLUR DG	Diesel	0.52	106,000	463,008	457,000	0.9870	661,000	302077,000
NEYVELI ST II	Lignite	0.82	1470,000	10125,360	10003,000	0.9879	1085,000	10853255,000
SAMALPATTI DG	Diesel	0.52	105,700	461,698	458,000	0.9920	661,000	302738,000
NORTH CHENNAI	Coal	0.82	630,000	4339,440	4347,000	1.0017	1085,000	4716495,000
NEYVELI ST I	Lignite	0.82	600,000	4132,800	4400,000	1.0647	1085,000	4774000,000
TUTICORIN	Coal	0.82	1050,000	7232,400	8084,000	1.1177	1085,000	8771140,000
KOVILKALAPPAL	Natural Gas	0.73	107,000	656,124	745,000	1.1355	418,000	311410,000
VALUTHUR GT	Natural Gas	0.73	95,000	582,540	671,000	1.1519	418,000	280478,000
METTUR	Coal	0.82	840,000	5785,920	6735,000	1.1640	1085,000	7307475,000
M. A. P. P.	Nuclear	0.36	340,000	1028,160	1577,000	1.5338	1085,000	1711045,000
			9214,700	53742,814	46670,000			

Note:

All Data on Generation for 03 -04 taken from CEA website - <http://cea.nic.in/>

PLF considered is based on Capacity Group as given under published document by CEA - Performance Review of Thermal Power Station 03 - 04 Section 2

Only Thermal Power Plants PLF is given under the published document

Hydro Power Plants PLF has been - considered as 40% based on various sites on Renewable Resources - http://www.auswea.com.au/about/wind_stops.htm

Capacity Group (MW)	P.L.F. %			
Commissioned up to 31	01 - '02	02 - '03	03 - '04	Avg. PLF value of 3 yrs.
500 and above	80.8	82.45	82.36	81.9
250 -500	83.89	87.36	86.48	85.9
200 - 250	75.51	78.31	79.44	77.8
140 - 200	46.73	40.41	42.21	43.1
120	39.19	43.18	34.86	39.1
110	49	52.69	53.64	51.8
100	56.33	57.42	52.01	55.3
70 - 85	42.7	46.71	49.58	46.3
62.5-67.5	59.1	53.83	61.79	58.2
60	46.58	45.52	44	45.4

50-57.5	37,12	4,062	37,63	26,3
20-40	37,12	40,62	37,63	38,5

Survey also dose not cover plants below 20MW, there PLF has been considered equivalent to 20 MW power plants

OM calculation has failed to cover many Renewable Energy Sources contributing to the local grids

For Nuclear Power Plants PLF for individual power plants are gven under CEA General Review 02 03 - Same has been applied

BUILD MARGIN CALCULATION

For TN Case - 20% will apply
Data of 18 plants commissioned in last 5 years in India

Total No of power plants in TN considered in OM - 38
20% of 38 = 7,6

1999 - 2004

										652,13
Power Plant	State	Installed Capacity MW	Fuel	Status (Commissioned/ Under construction)	Dates	PLF	Generation	IPCC Emission Factor tCO ₂ /GWh	Net Emission	BM
NLC-TPS1 Unit-II	Central	210	coal	9th and 10th year plans		0,78	1372,39	1085,00	1489045,32	
NPC Koodankulam TN	Central	2000	coal	9th and 10th year plans		0,82	13776,00	1085,00	14946960,00	
NLC TPS II Expansion	Central	500	coal	9th and 10th year plans		0,82	3444,00	1085,00	3736740,00	
Kuttalam Gas TNEB-TN	State	100	gas	9th and 10th year plans		0,55	464,52	418,00	194169,36	
Perungulam TNEB-TN	State	33	coal	9th and 10th year plans		0,39	106,72	1085,00	115793,37	
DLF power	private	52,8	gas	proposed gas		0,26	116,65	418,00	48757,93	
Aban Power	private	120	gas	proposed gas		0,39	394,13	418,00	164745,50	
Spic Electric Tuticorin II	private	525	coal	delayed projects		0,82	3611,79	1085,00	3918792,15	
Videocon Power	private	1050	coal	delayed projects		0,82	7232,40	1085,00	7847154,00	
Trishakhi Energy III	private	525	coal	delayed projects		0,82	3616,20	1085,00	3923577,00	
Cuddalore Power	private	1320	coal	delayed projects		0,82	9092,16	1085,00	9864993,60	
Vember	private	1873	gas	delayed projects		0,82	12885,49	418,00	5386135,15	
TN LNG & Power Co.	private	1886	gas	delayed projects		0,82	12974,93	418,00	5423518,90	
Reliance Power	private	500	lignite	delayed projects		0,82	3444,00	1085,00	3736740,00	
Kudankulam Unit 2	Tamil Nadu	1000	Atomic	Underconstruction	12.01.08	0,80	6720,00	0,00	0,00	
Kudankulam Unit 1	Tamil Nadu	1000	Atomic	Underconstruction	03.01.07	0,80	6720,00	0,00	0,00	
TAPS 4	Tamil Nadu	540	Atomic	Underconstruction	01.01.07	0,80	3628,80	0,00	0,00	
TAPS 3	Tamil Nadu	540	Atomic	Underconstruction	04.01.06	0,80	3628,80	0,00	0,00	
		13774,8				3,20	93228,97		60797122,29	

* Ministry of Power Report 02 - 03

Data for following States not available - Uttaranchal, All North East States, Pondichery, Jharkhand, Bihar, Sikkim, Andaman & Nicobar

PLF considered is based on Capacity Group as given under published document by CEA - Performance Review of Thermal Power Station 03 - 04 Section 2

PLF of Wind, Hydro, Renewable taken from - <http://www.auswea.com.au/> Australian

Plants under Capacity Addition Scheme by CEA and other agencies, only those plants which are under construction has been considered, that is mainly under Xth Plan

Date selected for underconstruction plant are the tentative date of Synchronization of those plants with the electricity grid.